

REMARKS

Claims 1-27, 29-33, 51, and 52 are pending. Claims 1, 4, 7, 9, and 21-23 have been amended. Claim 11 has been previously presented. Claims 51 and 52 have been withdrawn. Claims 2, 3, 5, 6, 8, 10, 12-20, 24-27, and 29-33 are original. Claims 28 and 34-50 have been canceled. No new matter has been introduced by the amendment.

1. Claim Rejections under 35 U.S.C. § 102(a) And 102(e)

Claims 1-8 have been rejected under 35 U.S.C. §102(a) and 102(e) over McEntee et al. (U.S. Pat. Pub. No. 2004/0050701). The Applicants respectfully traverse the rejections based on the following remarks.

McEntee describes a process for selective deposition of ionized droplets in an aerosol. Aerosols can be produced, as is discussed in paragraph [0094], by a droplet generator or, as in paragraph [0096], by an inkjet device. There is no teaching as to how ionization of the droplets can be achieved other than discussed in paragraph [0096] where it is stated that any known method can be used.

The Examiner has asserted that the aerosol discussed in paragraph [0097] can be considered of as a continuous phase of a gas and a discontinuous phase of a liquid (Office Action, pages 3-6). The Examiner has further asserted that the discontinuous phase can be a liquid, without indicating the nature of the liquid other than it should be an insulator (Office Action, pages 3-6). However, there is no teaching in McEntee of how droplets in an emulsion can be formed or ionized or in that situation how such a composition could be applied. For instance, it is not clear whether the composition is applied using the main embodiment in an ink jet applicator or is itself fogged or atomized.

The Examiner appears to suggest that McEntee teaches that the aerosol comprises an emulsion, that is, each of the droplets is itself an emulsion (Office Action, pages 3-6). This reading of the reference, however, teaches even further away from the present pending claims.

At least for the reasons above, the Applicants respectfully submit that amended independent claims 1, 4, and 7 are patentable over McEntee. Accordingly, the rejections against independent claims 1, 4, and 7, and thus the rejections against claims 2-3, 5-6, and 8, which all depend from amended independent claims 1, 4, and 7, respectively, have been overcome and should be withdrawn.

The Applicants further submit that amended independent claims 1, 4 and 7 are further distinguished by the inclusion of the subject matter of original claim 28 into them. There is no teaching or suggestion in McEntee of the modification of an emulsion by the addition of a surfactant with certain defined characteristics as set out in the amended claims (also see the discussion in section 2B below). Accordingly, the Applicants respectfully submit that amended independent claims 1, 4, and 7, and thus claims 2-3, 5-6, and 8, which all depend from amended independent claims 1, 4, and 7, respectively, would be patentable over McEntee in view of Montgomery (U.S. Pat. No. 6,280,595) and further in view of Paolini et al. (U.S. Pat. Pub. No. 2002/0131147).

2. Claim Rejections under 35 U.S.C. § 103(a)

A. Claims 9, 10, 24-27, And 30-33

Claims 9, 10, 24-27, and 30-33 have been rejected under 35 U.S.C. §103(a) over McEntee in view of Montgomery. The Applicants respectfully traverse the rejections based on the following remarks.

Independent claim 9 has been amended to recite the subject matter of original claim 28. As discussed in section 1 above, the Applicants respectfully submit that McEntee does not teach the use of emulsions modified as in amended independent claim 9. The addition of the reference Montgomery does not change the position.

Montgomery teaches a solid phase synthesis method of selective de-protection but it does not teach or suggest the use of emulsions. The deficiencies of McEntee are not supplied by Montgomery. The liquids of Montgomery are firstly a buffering or scavenging solution which is applied over an entire surface, and then an electrochemical reaction occurs where there is a surface electrode to cause selected deprotection. After selected deprotection, a monomer solution or solution of preformed molecules is then applied with binding at the deprotected sites. Neither of these solutions is an emulsion.

In view of the above remarks, the Applicants respectfully submit that McEntee in view of Montgomery do not teach or suggest all the claimed limitations as recited in amended independent claim 9. Accordingly, the rejections against amended independent claim 9, and thus the rejections against claims 10, 24-27, and 30-33, which all depend from amended independent claim 9, have been overcome and should be withdrawn.

B. Claims 9, 11-23, 28, And 29

Claims 9, 11-23, 28, and 29 have been rejected under 35 U.S.C. §103(a) over McEntee in view of Montgomery and further in view of Paolini. The Applicants respectfully traverse the rejections based on the following remarks.

As discussed in section 2A above, amended independent claim 9 is patentable over McEntee in view of Montgomery. The addition of the reference Paolini does not change the position.

Paolini relates to a different system and is irrelevant to the present pending claims. Paolini discloses a process for forming an electrophoretic medium in which droplets are bound into a solid continuous phase. Within the droplets which are a liquid are colored particles which can move within the droplets under the influence of an electric field. It is not the droplets as a whole which move in the continuous phase as they do in the present pending claims. When an electric field of one polarity is applied to the electrophoretic medium, all the colored particles of one color within a droplet move to one side of the droplets, and so the electrophoretic medium appears to be a selected color. When an electric field of an opposite polarity is applied to the electrophoretic medium, all the colored particles of another color within a droplet move to one side of the droplets, and so the electrophoretic medium appears to be the other color. The article incorporating the electrophoretic material is used for variable display panels. The droplets themselves are not charged and they are not mobile in the continuous phase as the continuous is solid.

In contrast, the method of forming a DNA array on the a substrate using a stepwise coupling process with a chemical de-protecting step prior to each coupling step as recited in amended independent claim 9 comprises applying an emulsion to the substrate, the emulsion including an electrically insulative continuous phase and an electrically charged discontinuous phase and a chemical de-protecting reagent carried in the discontinuous phase, the emulsion comprising a surfactant, the surfactant having a first part which is compatible with the continuous phase and a second part which is compatible with the discontinuous phase, the surfactant being selected to not significantly reduce the volume resistivity of the continuous phase, and depositing the discontinuous phase of the emulsion to the at least one region by attraction by the electric field on the region and optionally by the use of a bias voltage to reduce deposition in non-required regions.

In view of the above remarks, the Applicants respectfully submit that McEntee in view of Montgomery and further in view of Paolini do not teach or suggest all the claimed limitations as recited in amended independent claim 9. Accordingly, the rejections against amended independent claim 9, and thus the rejections against claims 11-23, 28, and 29, which all depend from amended independent claim 9, have been overcome and should be withdrawn.

3. Conclusion

Based on the above amendments and remarks, the Applicants respectfully submit that the claims are in condition for allowance. The examiner is kindly invited to contact the undersigned agent to expedite allowance.

Respectfully submitted,

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